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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,468	08/01/2003	Thomas Ulrich Kampe	1604-458	5444

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EXAMINER

ANDERSON, DENISE BROWN

ART UNIT PAPER NUMBER

2877

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/633,468	KAMPE ET AL.	
	Examiner	Art Unit	
	Denise B. Anderson	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/30/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-10, 12-14, 16-18, 22-28, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 11, 15, 19-21 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/24/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the location for the cold stop and the other structural elements of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 9, 13, 16-18, 22-27, 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Ershov (US Patent No. 6,243,170).

2. As to claims 1, 8, 17, 22, 23, 26 and 27 the applicant claims a telescope optical system, a filter, and a detector. In Figure 1, Ershov discloses a telescope 32 with an input laser beam 16 and an output whose size is reduced three times (magnification less than one). See column 2, line 67 and column 3, line 1 for the

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magnification description. In Figure 1, Ershov further discloses a first field of view established by laser light 16. It is inherent that the first field of view has a defined magnification, since this field of view is being further de-magnified at the output of the telescope 32 (column 2, line 67 and column 3, line 1). Ershov does not explicitly state that the magnification occurs in any particular plane, thereby suggesting that it has been magnified in all planes and that the magnifications are not different with respect to individual planes. Also in figure 1, Ershov discloses an etalon 25 that serves as a filter and a detector 44. The telescope 32 collects light and magnifies the collected light, and the etalon 25 filters the magnified light.

3. As to claims 9 and 13, the applicant discloses that the filter has at least a first optical cavity and that the optical cavity is part of an etalon. In Figure 1, Ershov discloses an etalon 25 that establishes one optical cavity.

4. As to claims 18 and 30 the applicant claims measuring the intensity of the filtered light. Ershov discloses the fringe pattern obtained by the detector, which collects light after a double pass through the etalon, which acts as a filter (column 3, lines 11-21).

5. As to claim 25, the applicant claims that the filter is a Fabry-Perot interferometer. While Ershov does not specifically state that the etalon (filter) is of a Fabry-Perot type, the etalon 25 described in figure 1, performs in the same manner as Fabry-Perot interferometers (i.e., rays being reflected many times within the etalon gap and producing an output fringe pattern). See also column 1, lines 8-24 of Ershov.

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6. As to claims 16, 24 and 31, the applicant claims means for blocking unwanted background radiation (a cold stop). In Figure 5, Ershov discloses an aluminum aperture 56, which serves the purpose of blocking unwanted radiation.

The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Vaez-Iravani et al (US Patent Application No. 2003/0011760 A1).

7. As to claim 1, the applicant claims a telescope optical system, a filter, and a detector. In Figure 4, Vaez-Iravani et al discloses a telescope optical system consisting of a pair of anamorphic prisms 84, which receives an input light 32 and produces an output light that may be reduced in diameter (i.e., magnification of less than one) of the beam of light in one direction (paragraph 0051). Vaez-Iravani et al further discloses a collection system, which may include a spatial filter for receiving light that has come from the anamorphic prisms (telescope) and a detector for processing the light from the filter (paragraphs 0060 and 0061).

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8. As to claim 2, the applicant claims that the telescope optical system is anamorphic and that it magnifies light in one plane and does not magnify light in another plane perpendicular to that plane. Vaez-Iravani et al discloses that the pair of anamorphic prisms may be configured to reduce a diameter (i.e., magnification of less than one) of the beam of light in one direction (paragraph 0051). Since the reduction of beam size occurs in one direction only, it can be deduced that there is no reduction in other directions (i.e., directions that are perpendicular).

9. As to claim 3, the applicant claims that one plane is perpendicular to the other. Vaez-Iravani et al discloses that the beam size reduction occurs in one direction only. Thus, for other directions the beam would not be magnified, including any that are perpendicular to the direction of beam size reduction. There exists a plane that would be perpendicular to the plan in which the beam size has been reduced.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5, 7, 10, 12, 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ershov (US Patent No. 6,243,170).

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11. As to claims 5 and 7, the applicant claims a magnification of no more than 0.25 and 0.1, respectively. Ershov discloses a telescope 32, which has an input field of view (established by the input laser beam 16) and an output laser beam whose size is reduced three times (Column 3, Line 1), indicating a magnification of 0.33, which less than 1 in and in all planes of the beam. Ershov discloses the claimed invention except for the specific value of 0.1 for the magnification. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use the appropriate optical elements for achieving a specific magnification value, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

12. Claims 10, 12, 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ershov (US Patent No. 6,243,170) further in view of Colburne (US Patent No. 5,666,225).

13. As to claims 10 and 28, the applicant claims a high refractive index for the optical cavity. Ershov discloses the claimed invention except for a high index of refraction. Colburne discloses a material having a high index of refraction (column 2, lines 40-42). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Ershov with those of Colburne for the purpose of reducing reflection losses at interfaces and, hence, increasing light output.

14. As to claim 12, the applicant claims that the material in the optical cavity is Germanium. Ershov discloses the claimed invention except for the material

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Germanium. Colburne discloses a material of high refractive index, such as a liquid crystal. However, other materials of high refractive index also apply. It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the air gap with a high index of refraction material like Germanium for the purpose of low power imaging, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for its intended use. In re Leshin, 125 USPQ 416.

15. As to claim 14, the applicant claims a plurality of optical cavities. Ershov discloses the claimed invention except for the plurality of cavities. In Figure 5, Colburne discloses two double pass etalons (see also column 4, lines 24-26). Ershov also discloses the motivation for using a double pass through a single cavity rather than single passes through multiple cavities—to avoid unsatisfactory definition of the peak transmission wavelengths (column 1, lines 20-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Ershov with those of Colburne for the purpose improving the efficiency of the intensity output from cavity.

Allowable Subject Matter

16. Claims 4, 6, 11, 15, 19, 20, 21 and 29 are objected to as being dependent upon a rejected base claim (claim 1), but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record, taken alone or in combination, fails to disclose or render obvious a defined field of view angle (claims 4, 6, 11 and 29), a reflector stack (claim 15), spectral lines of absorption of an atmospheric gas

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a reflector stack (claim 15), spectral lines of absorption of an atmospheric gas (claim 19), and attenuating wavelengths (claim 21), in combination with the rest of the limitations of claim. Claim 20 is objected to because it depends on an objected claim (19).

17. Claim 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sargoytchev (US Patent No. 5,801,831). Sargoytchev discloses a Fabry-Perot spectrometer for detecting a spatially varying spectral signature of an extended source.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise B. Anderson whose telephone number is 571-272-8324. The examiner can normally be reached on Mon-Fri (9:30 AM - 6 PM).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DBA

Denise B Anderson
Examiner
Art Unit 2877


Gregory J. Toatley, Jr.
Supervisory Patent Examiner
Art Unit 2877
9 June 05